AMENDMENTS TO THE CLAIMS

Listing of status of all claims:

Claims 1-96 shown below remain pending as originally filed.

Claims 97-230 are presented new with this Preliminary Amendment.

Claims 1-230 are all shown below for examination and allowance.

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1. (Original) An image controller for at least in part controlling an image generation machine, said image generation machine for controlling imagery shown by a display;

said image controller comprising,

a member graspable by a human user's hand;

a first button, said first button at least in part exposed exterior of said member to be depressible by a finger of a hand grasping said member, said first button structured to rotate upon depression by a finger,

a first proportional sensor, said first proportional sensor mounted within said member and activatable by rotation of said first button;

a second button, said second button at least in part exposed exterior of said member to be depressible by a finger of a hand grasping said member, said second button structured to rotate upon

depression by a finger,

a second proportional sensor, said second proportional sensor mounted within said member and activatable by rotation of said second button;

the first and second buttons are variably depressible, and the first and second proportional sensors are structured to vary electrical output related to variable depression of the associated buttons, said output communicated to

the image generation machine causing imagery shown by the display to be variably controlled through variable depression of the first and second buttons;

a two-axes input structure at least in part supported by said member, said two-axes input structure associated with sensors for sensing two axes of inputs;

the first and second proportional sensors are at least in part connected to a sheet;

the sensors associated with said two-axes input structure are at least in part connected to said sheet;

active tactile feedback means for providing feedback to a hand grasping said member, said active tactile feedback means is positioned within said member.

2. (Original) An image controller according to claim 1 further comprising

a third proportional sensor is pressure-sensitive and includes a resilient dome cap, and

a fourth proportional sensor is pressure-sensitive and includes a resilient dome cap;

the resilient dome caps of the third and the fourth proportional sensors are each structured to provide a break-over tactile feedback.

3. (Original) An image controller according to claim 2 further comprising the resilient dome caps of the third and the fourth proportional sensors are each structured with a portion to impinge against an underlying electrically conductive element, said electrically conductive element at least engaging circuit traces when impinged upon.

4. (Original) An image controller according to claim 3 further comprising the portions of the resilient dome caps of the third and fourth proportional sensors, the portions which impinge against the underlying electrically conductive elements, are substantially convexed shaped portions.

5. (Original) An image controller according to claim 4 further comprising

said circuit traces supported on said sheet.

6. (Original) An image controller according to claim 5 further comprising

said active tactile feedback means includes a motor.

7. (Original) An image controller according to claim 6 further comprising

an offset weight mounted on a shaft of said motor.

8. (Original) An image controller according to claim 7 wherein said controller is a hand held three-dimensional graphics controller.

9. (Original) An image controller according to claim 1 wherein the sensors associated with said two-axes input structure are two bi-directional sensors.

10. (Original) An image controller according to claim 1 wherein the sensors associated with said two-axes input structure are four uni-directional sensors.

11. (Original) An image controller according to claim 10 wherein said two-axes input structure includes four resilient dome caps.

12. (Original) An image controller for at least in part controlling an image generation machine, said image generation machine for controlling imagery;

said image controller comprising,

a member graspable by a human user's hand;

a first pivotally mounted button, said first pivotally mounted button at least in part exposed exterior of said member to be depressible by a finger of a hand grasping said member,

a first proportional sensor, said first proportional sensor mounted within said member and activatable by depression of said first pivotally mounted button;

said first pivotally mounted button is variably depressible, and said first proportional sensor is structured to vary electrical output related to variable depression of the pivotally mounted button, said output communicated to

the image generation machine causing imagery to be variably controlled through variable depression of said first pivotally mounted button;

active tactile feedback means for providing feedback to a hand grasping said member, said active tactile feedback means is positioned within said member.

13. (Original) An image controller according to claim 12

further comprising

a second pivotally mounted button, said second pivotally mounted button at least in part exposed exterior of said member to be depressible by a finger of a hand grasping said member,

a second proportional sensor, said second proportional sensor mounted within said member and activatable by depression of said second pivotally mounted button;

said second pivotally mounted button is variably depressible, and said second proportional sensor is structured to vary electrical output related to variable depression of the second pivotally mounted button, said output communicated to

the image generation machine causing imagery to be variably controlled through variable depression of said second pivotally mounted button.

14. (Original) An image controller according to claim 13 further comprising

a two-axes input structure at least in part supported by said member, said two-axes input structure associated with sensors for sensing two axes of inputs.

15. (Original) An image controller according to claim 14 further comprising

the first and second proportional sensors are at least in

part connected to a sheet.

16. (Original) An image controller according to claim 15 further comprising

the sensors associated with said two-axes input structure are at least in part connected to said sheet.

17. (Original) An image controller according to claim 16 further comprising

a third proportional sensor activated by a single-finger depressible individual button, and

a fourth proportional sensor activated by a single-finger depressible individual button.

18. (Original) An image controller according to claim 17 further comprising

said third proportional sensor is pressure-sensitive and includes a resilient dome cap, and

said fourth proportional sensor is pressure-sensitive and includes a resilient dome cap.

19. (Original) An image controller according to claim 18 further comprising the resilient dome caps of the third and the fourth proportional sensors are each structured to provide a

break-over tactile feedback.

20. (Original) An image controller according to claim 19 further comprising the resilient dome caps of the third and the fourth proportional sensors are each structured with a portion to impinge against an underlying electrically conductive element, said electrically conductive element at least engaging circuit traces when impinged upon.

21. (Original) An image controller according to claim 20 further comprising the portions, of the resilient dome caps which impinge against the underlying electrically conductive elements, are substantially convexed shaped portions.

22. (Original) An image controller according to claim 21 further comprising

said circuit traces supported on said sheet.

23. (Original) An image controller according to claim 22 further comprising said active tactile feedback means includes a motor.

24. (Original) An image controller according to claim 23 further comprising

an offset weight mounted on a shaft of said motor.

25. (Original) An image controller according to claim 24 wherein said controller is a hand held three-dimensional graphics controller.

26. (Original) A hand operable image controller for controlling imagery, comprising:

a housing;

a first two-axes input structure supported by said housing;

a second two-axes input structure supported by said housing;

active tactile feedback means for providing a feedback to a human user of said controller, said active tactile feedback means supported by said housing.

27. (Original) A hand operable image controller according to claim 26 wherein said active tactile feedback means includes a motor having a shaft with an offset weight mounted on said shaft.

28. (Original) A hand operable image controller according to claim 27 wherein

said first two-axes input structure is associated with sensors for interpreting two-axes of input, and

said second two-axes input structure is associated with

sensors for interpreting two-axes of input, and

a sheet connects the sensors of the first and second two-axes input structures.

29. (Original) A hand operable image controller according to claim 26 wherein said housing supports a single-finger depressible independent button.

30. (Original) A hand operable image controller according to claim 29 wherein said button is associated with a proportional sensor, and said button is variably depressible causing said proportional sensor to create a signal representing the variable depression of said button, said signal causing said imagery to vary according to the variable depression of said button.

31. (Original) A hand operable image controller according to claim 30 wherein said controller includes means for providing a threshold tactile feedback associated with depression of said button.

32. (Original) A hand operable image controller according to claim 31 further comprising

a resilient dome cap associated with said proportional

sensor,

said proportional sensor is a pressure-sensitive sensor.

33. (Original) A hand operable image controller according to claim 32 wherein said pressure-sensitive sensor is a variable resistance sensor.

34. (Original) A hand operable image controller according to claim 33 wherein said resilient dome cap contains a generally convexed surface area located within the dome.

35. (Original) A hand operable image controller according to claim 34 wherein said convexed surface is deformable and flattens under depressive pressure applied to said button.

36. (Original) A hand operable image controller according to claim 30 wherein said button is pivotally mounted.

37. (Original) A hand operable image controller according to claim 36 wherein the proportional sensor associated with the pivotally mounted button is a rotary sensor.

38. (Original) A hand operable image controller according to claim 37 wherein said rotary sensor is a potentiometer.

39. (Original) A hand operable image controller according to claim 30 wherein

said first two-axes input structure is associated with sensors for interpreting two-axes of input, and

said second two-axes input structure is associated with sensors for interpreting two-axes of input, and

a sheet connects the sensors of the first and second two-axes input structures, and said sheet also connects

said proportional sensor of said single-finger depressible independent button.

40. (Original) A hand operable image controller according to claim 39 wherein said sheet is a circuit board sheet.

41. (Original) A hand operable image controller according to claim 39 wherein said sheet is a flexible membrane sheet.

42. (Original) A hand operable image controller according to claim 33 wherein

said first two-axes input structure is associated with sensors for interpreting two-axes of input, and

said second two-axes input structure is associated with

sensors for interpreting two-axes of input, and

a sheet connects the sensors of the first and second two-axes input structures, and said sheet also connects

said pressure-sensitive sensor of said button.

43. (Original) A hand operable image controller according to claim 42 wherein said sheet is a circuit board sheet.

44. (Original) A hand operable image controller according to claim 42 wherein said sheet is a flexible membrane sheet.

45. (Original) A hand operable image controller according to claim 37 wherein

said first two-axes input structure is associated with sensors for interpreting two-axes of input, and

said second two-axes input structure is associated with sensors for interpreting two-axes of input, and

a sheet connects the sensors of the first and second two-axes input structures, and said sheet connects

said rotary sensor of the pivotally mounted button.

46. (Original) A hand operable image controller according to claim 45 wherein said sheet is a circuit board sheet.

47. (Original) A hand operable image controller according to claim 45 wherein said sheet is a flexible membrane sheet.

48. (Original) A method of controlling imagery comprising the steps of:

depressing, variably, a finger depressible button, said button

pivoting, variably, causing variable

activating of a proportional sensor, said proportional sensor

outputting a signal useful to an image generation machine for

causing imagery to vary according to the variable depressing of said button.

49. (Original) A method of controlling imagery according to claim 48 further comprising the steps of:

depressing, variably, a second finger depressible button, the second button

pivoting, variably, causing variable

activating of a second proportional sensor, said second proportional sensor

outputting a second signal useful to the image generation machine for causing imagery to vary according to the variable depressing of said second button.

50. (Original) A method of controlling imagery according to claim 49 further comprising the step of:

providing an active tactile feedback.

51. (Original) A method of controlling imagery according to claim 50 further comprising the step of:

operating, variably, a two-axes input structure associated with proportional sensors for variably controlling said imagery.

52. (Original) A method of controlling imagery according to claim 51 further comprising the step of:

operating, variably, a second two-axes input structure associated with proportional sensors for variably controlling said imagery.

53. (Original) A method of controlling imagery according to claim 52 further comprising the step of:

depressing, variably, a third finger depressible button for variably controlling said imagery.

54. (Original) A method of controlling imagery according to claim 52 further comprising the step of:

operating a third two-axes input structure.

55. (Original) A method of controlling imagery according to claim 54 further comprising the step of:

depressing, variably, a third finger depressible button for variably controlling said imagery.

56. (Original) A method of navigating a viewpoint within a three-dimensional graphics display, comprising the steps of:

variably depressing a pivotal button, said pivotal button

activating a proportional sensor, said proportional sensor

outputting a signal at least in part useful for variably navigating the viewpoint.

57. (Original) A method of navigating a viewpoint according to claim 56 further including the step of

supplying active tactile feedback.

58. (Original) A method of navigating a viewpoint according to claim 57 further including the steps of:

variably depressing a second pivotal button, said second pivotal button

activating a second proportional sensor, said second proportional sensor

outputting a second signal at least in part useful for variably navigating the viewpoint.

59. (Original) A method of navigating a viewpoint according to claim 58 further including the step of:

operating, variably, a two-axes input structure for variably navigating the viewpoint.

60. (Original) A method of navigating a viewpoint according to claim 59 further including the step of:

operating, variably, a second two-axes input structure for variably navigating the viewpoint.

61. (Original) A method of navigating a viewpoint according to claim 60 further including the step of:

depressing with varying pressure, a single-finger depressible button associated with a pressure-sensitive sensor and a resilient dome cap having a substantially convexed portion for impinging electrically conductive material.

62. (Original) A method of navigating a viewpoint according to claim 60 further including the step of:

operating, variably, a third two-axes input structure for variably navigating the viewpoint.

63. (Original) A method of navigating a viewpoint according

to claim 62 further including the step of:

depressing with varying pressure, a single-finger depressible button associated with a pressure-sensitive sensor and a resilient dome cap having a substantially convexed portion for impinging electrically conductive material.

64. (Original) A method of controlling an object shown by a three-dimensional graphics display, comprising the steps of:

variably depressing a pivotal button, said pivotal button

activating a proportional sensor, said proportional sensor

outputting a signal at least in part useful for variably controlling the object.

65. (Original) A method of controlling an object according to claim 64 further including the step of

receiving active tactile feedback.

66. (Original) A method of controlling an object according to claim 65 further including the steps of:

variably depressing a second pivotal button, said second pivotal button

activating a second proportional sensor, said second proportional sensor

outputting a second signal at least in part useful for

variably controlling the object.

67. (Original) A method of controlling an object according to claim 66 further including the step of:

operating, variably, a two-axes input structure for variably controlling the object.

68. (Original) A method of controlling an object according to claim 67 further including the step of:

operating, variably, a second two-axes input structure for variably controlling the object.

69. (Original) A method of controlling an object according to claim 68 further including the step of:

depressing with varying pressure, a single-finger depressible button associated with a pressure-sensitive sensor and a resilient dome cap having a substantially convexed portion for impinging electrically conductive material, said depressing with varying pressure for variably controlling the object.

70. (Original) A method of controlling an object according to claim 68 further including the step of:

operating, variably, a third two-axes input structure for variably controlling the object.

71. (Original) A method of controlling an object according to claim 70 further including the step of:

depressing with varying pressure, a single-finger depressible button associated with a pressure-sensitive sensor and a resilient dome cap having a substantially convexed portion for impinging electrically conductive material, said depressing with varying pressure for variably controlling the object.

72. (Original) A method of controlling imagery, comprising the steps of:

pressing, variably, a first button for varying the imagery, receiving a first break-over tactile feedback.

73. (Original) A method of controlling imagery according to claim 72 wherein said receiving of said first break-over tactile feedback is preceded by the variable pressing of said first button.

74. (Original) A method of controlling imagery according to claim 72 further comprising the steps of:

pressing, variably, a second button for varying the imagery, receiving a second break-over tactile feedback.

75. (Original) A method of controlling imagery according to

claim 74 wherein said receiving of said second break-over tactile feedback is preceded by the variable pressing of said second button.

76. (Original) A method of controlling imagery according to claim 74 further comprising the step of:

inputting variably, two-axes inputs using a first two-axes structure, said inputting variably for varying the imagery.

77. (Original) A method of controlling imagery according to claim 76 further comprising the step of:

inputting variably, two-axes inputs using a second two-axes structure, for varying the imagery.

78. (Original) A method of controlling imagery according to claim 77 further comprising the step of:

depressing with varying pressure a single-finger depressible button for varying the imagery.

79. (Original) A method of controlling imagery according to claim 77 further comprising the step of:

inputting two-axes inputs using a third two-axes structure, for controlling the imagery.

80. (Original) A method of controlling imagery according to claim 79 further comprising the step of:

depressing with varying pressure a single-finger depressible button for varying the imagery.

81. (Original) A method of controlling imagery by controlling variable output of at least one variable output sensor actuated by a single finger depressible button, comprising the steps:

pressing, variably, said button, thus

actuating said sensor, said sensor

outputting a signal, said signal representing intensity of the pressing,

varying the imagery according to said signal,

providing, at least through said button, a break-over tactile feedback.

82. (Original) A method of controlling imagery according to claim 81 wherein a second variable output sensor is actuated by a second single finger depressible button, further comprising the steps:

pressing, variably, said second button, thus

actuating said second sensor, said second sensor

outputting a second signal, said second signal representing

intensity of the pressing of said second button,

varying the imagery according to said second signal,

providing at least through said second button a second break-over tactile feedback.

83. (Original) A method of controlling imagery according to claim 82 further comprising the step of:

providing an active tactile feedback.

84. (Original) A method of controlling imagery according to claim 83 further comprising the step of:

operating a first two-axes input structure for varying the imagery.

85. (Original) A method of controlling imagery according to claim 84 further comprising the step of:

operating a second two-axes input structure for varying the imagery.

86. (Original) A method of controlling imagery according to claim 85 further comprising the step of:

depressing with varying pressure a third finger depressible button causing varying change of said imagery.

87. (Original) A method of controlling imagery according to claim 85 further comprising the step of:

operating a third two-axes input structure for controlling the imagery.

88. (Original) A method of controlling imagery according to claim 87 further comprising the step of:

depressing with varying pressure a fourth finger depressible button causing varying change of said imagery.

89. (Original) A method of manufacturing a hand operable image controller for controlling imagery, comprising the steps of:

installing a pivotally moveable button as a part of said image controller, and

installing a proportional sensor positioned to be activated by pivoting motion of said pivotally moveable button, and

installing circuitry for reading said proportional sensor and causing the imagery to change variably according to said pivoting motion of said pivotal button.

90. (Original) A method of manufacturing a hand operable image controller according to claim 89 further comprising the steps of:

installing a first two-axes input structure as part of said

controller,

installing active tactile feedback means.

91. (Original) A method of manufacturing a hand operable image controller according to claim 90, further comprising the steps of:

installing a second pivotally moveable button as part of said image controller, and

installing a second proportional sensor positioned to be activated by pivoting motion of said second pivotally moveable button, and

installing a second two-axes input structure as part of said controller.

92. (Original) A method of manufacturing a hand operable image controller according to claim 91, further comprising the step of:

installing a third two-axes input structure as part of said controller.

93. (Original) A method of manufacturing a hand operable image controller according to claim 92, further comprising the step of:

installing a pressure-sensitive button for variably

controlling imagery in relation to pressure applied to said pressure-sensitive button.

94. (Original) A method of manufacturing a hand operable image controller according to claim 93, further comprising the step of:

installing a sheet, said sheet supporting electrical circuit traces and said sheet connecting the proportional sensors with sensors associated with said first two-axes input structure and with a pressure-sensitive sensor associated with said pressure-sensitive button.

95. (Original) A method of manufacturing a hand operable image controller for at least in part controlling an image generation machine, said image generation machine for controlling imagery shown by a display; the method comprising the steps of:

molding a housing graspable by a human user's hand;

installing a first button positioned at least in part exposed exterior of said housing to be variably depressible by a finger of a hand grasping said housing, said first button structured to rotate upon depression by a finger,

installing a first proportional sensor, said first proportional sensor mounted within said housing and activatable by rotation of said first button;

installing a second button positioned at least in part exposed exterior of said housing to be variably depressible by a finger of a hand grasping said housing, said second button structured to rotate upon depression by a finger,

installing a second proportional sensor, said second proportional sensor mounted within said housing and activatable by rotation of said second button;

installing circuitry for reading the first and second proportional sensors, said circuitry for creating an electrical output related to variable depression of the associated buttons, and for communicating said output to the image generation machine causing imagery shown by the display to be variably controlled through variable depression of the first and second buttons;

installing a two-axes input structure at least in part supported by said housing, said two-axes input structure associated with sensors for sensing two axes of inputs;

installing a sheet at least in part supporting said circuitry, said sheet connecting the first and second proportional sensors, said sheet also connecting the sensors associated with said two-axes input structure;

installing a motor and weight for providing feedback to a hand grasping said housing, said motor is positioned within said housing.

96. (Original) A method of manufacturing a hand operable image controller according to claim 95 further including the steps:

installing a third proportional sensor to be activated by human input, and

installing a fourth proportional sensor to be activated by human input;

said third proportional sensor is pressure-sensitive and includes a resilient dome cap, and

said fourth proportional sensor is pressure-sensitive and includes a resilient dome cap;

the resilient dome caps of the third and the fourth proportional sensors are each structured to provide a break-over tactile feedback.

97. (new) An image controller comprising:

a first input member positioned to activate first input member sensors, said first input member moveable on at least two axes;

a second input member positioned to activate second input member sensors, said second input member moveable on at least two axes;

a plurality of finger depressible button input members positioned to activate button input member sensors;

a circuit board sheet structurally connecting, at least in part, said first input member sensors to said second input member sensors;

said image controller is connected to an image generation device;

at least one of the button input member sensors is a pressure-sensitive variable sensor, whereby depression of at least one of the finger depressible button input members provides a proportional signal representing a level of depressive pressure applied; and

active tactile feedback structure, as a component of said controller, said active tactile feedback structure providing vibration to be felt by a hand holding said controller, said active tactile feedback comprising a motor and a weight.

98. (new) An image controller according to claim 97 in which said sheet also connects, at least in part, to at least one of said button input member sensors.

99. (new) An image controller comprising:

a first input member controllable by a human hand on at least two axes, said first input member structured to activate a first set of sensors; and

a second input member controllable by a human hand on at least two axes, said second input member structured to activate a second set of sensors;

a plurality of finger depressible button input members, said finger depressible button input members structured to activate a third set of sensors; and

a circuit board connects the first set, the second set and the third set of the sensors.

100. (new) An image controller according to claim 99 in which said at least one of the finger depressible button input members is associated with a pressure-sensitive variable sensor, whereby depression of said at least one of the finger depressible button input members provides a proportional signal representing a level of depressive pressure applied.

101. (new) An image controller according to claim 99 wherein said image controller further comprises an active tactile feedback motor which rotates an offset weight.

102. (new) An image controller according to claim 101 wherein said circuit board has electrical circuit traces and an application specific integrated circuit chip located on said circuit board.

103. (new) An image controller according to claim 102 wherein said at least one of the finger depressible button input members is associated with a pressure-sensitive variable sensor, whereby depression of said at least one of the finger depressible buttons provides a proportional signal representing a level of depressive pressure applied.

104. (new) An image controller comprising:

a first input member with associated sensors, said first input member moveable on at least two axes;

a second input member with associated sensors, said second input member moveable on at least two axes; and

at least four independent finger depressible buttons with associated sensors; and

a circuit board sheet connects to the sensors of the input members and the sensors of said finger depressible buttons.

105. (new) An image controller according to claim 104 in which at least one of the finger depressible buttons is structured with a resilient dome cap, and said image controller further comprises active tactile feedback structure mounted as a component of said controller, said active tactile feedback structure providing vibration to be felt by a hand holding said controller.

106. (new) An image controller according to claim 105 in which said image controller is connected to an image generation device.

107. (new) An image controller according to claim 106 in which said image generation device includes a television based electronic game.

108. (new) An image controller according to claim 107 wherein said active tactile feedback structure comprises an electric motor with offset weight.

109. (new) An image controller according to claim 108 in which a plunger is positioned above said dome cap, said plunger comprising a non-conductive rigid plastic material.

110. (new) An image controller according to claim 105 in which said at least one of the finger depressible buttons is a variably depressible button associated with a variable sensor, said variable sensor providing a proportional signal, wherein depression of said variably depressible button provides a proportional signal representing variable depression of said variably depressible button.

111. (new) An image controller according to claim 110 wherein said variable sensor is a pressure-sensitive variable sensor.

112. (new) An image controller according to claim 111 in which said circuit board sheet supports an application specific integrated circuit.

113. (new) An image controller according to claim 104 in which said image controller further comprises a second circuit board sheet.

114. (new) An image controller according to claim 113 further comprising active tactile feedback provided by a motor and offset weight.

115. (new) An image controller according to claim 113 in which said at least one of the finger depressible buttons is associated with a pressure-sensitive variable sensor providing a proportional signal, whereby depression of said at least one of the finger depressible buttons provides a proportional signal representing a level of depressive pressure applied.

116. (new) An image controller according to claim 115

wherein said pressure-sensitive variable sensor includes an electrically conductive pill carried by a dome shaped member; said electrically conductive pill comprising deformable material having a shaped surface, whereby when said button is depressed with increasing input pressure the material deforms to contact additional surface area providing additional conductivity changes.

117. (new) A method of interacting with an image controller controlling at least a three-dimensional object image, comprising:

receiving a first signal from said image controller, said first signal derived from a pressure-sensitive analog sensor associated with a single independent depressible button positioned on said image controller, said first signal used to control said three-dimensional object image, and

sending a second signal to said image controller, said second signal used to provide an active tactile feedback vibration felt by a hand of a human user, the act of sending said second signal results from virtual contact of said three-dimensional object image caused by the act of receiving said first signal.

118. (new) A method of interacting with an image controller according to claim 117 further comprising

receiving a third signal and a fourth signal, the third and fourth signals used as three-dimensional viewpoint navigating

commands.

119. (new) A method of interacting with an image controller according to claim 118 wherein the third and fourth signals are provided by two bi-directional proportional sensors located within said image controller.

120. (new) A method of interacting with an image controller according to claim 119 wherein a fifth signal is provided by a third bi-directional proportional sensor and a sixth signal is provided by a fourth bi-directional proportional sensor located within said image controller; and said button having a tactile resilient structure providing a user discernable tactile feedback upon depression of said button; at least two of the sensors connected to at least one sheet.

121. (new) A method of using an image controller controlling at least a three-dimensional object image, comprising the acts:

receiving a three-dimensional object command from at least one of four bi-directional proportional sensors, and

sending an active tactile feedback command to said image controller, the act of sending results from virtual contact of the three-dimensional object caused by the act of receiving, whereby the sending of the active tactile feedback command causes

vibration to be felt by a hand of a human user, the vibration related to contacting of the three-dimensional object image.

122. (new) A method of using an image controller according to claim 121 further including the act

receiving a three-dimensional viewpoint navigating command from said image controller.

123. (new) A method of using an image controller according to claim 122 wherein the three-dimensional commands are provided at least in part by four unidirectional sensors located in said image controller.

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124. (new) A method of using an image controller according to claim 123 wherein the three-dimensional commands are provided at least in part by activation of two single independent buttons positioned to activate proportional sensors located within said image controller.

125. (new) A method of using an image controller according to claim 124 wherein at least one of said buttons has a tactile resilient structure providing a user discernable tactile feedback upon depression of the button; at least two of the sensors connected to at least one sheet.

126. (new) A method of interacting with an image controller controlling electronic game imagery, comprising the acts:

receiving a command from at least one of four bi-directional proportional sensors located in said image controller; and

receiving a command from at least one of four unidirectional sensors located in said image controller; and

receiving a command from at least one of two single independent buttons positioned to activate proportional sensors connected by a sheet within said image controller, said buttons having a resilient tactile structure providing a tactile feedback to at least one finger of a hand of a human user;

sending an active tactile feedback command to said image controller, the active tactile feedback command causes a motor to rotate an offset weight located in said image controller causing a vibration to be felt by the hand of the human user.

127. (new) A method of interacting with an image controller controlling electronic game imagery, comprising the acts:

receiving a command from at least one of four bi-directional proportional sensors located in said image controller; and

receiving a command from at least one of four unidirectional sensors located in said image controller; and

receiving a command from at least one of two independent

pivotal buttons structured to activate proportional sensors located within said image controller;

sending an active tactile feedback command to said image controller, the active tactile feedback command causes a motor to rotate an offset weight located in said image controller causing a vibration to be felt by a hand of a human user.

128. (new) A method according to claim 127 further comprising

using at least some of the commands to control the electronic game, and said sending is according to simulated contact in the electronic game.

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129. (new) A method of interacting with an image controller controlling electronic game imagery shown on a television, said image controller comprising a hand held housing, four bi-directional proportional sensors, four unidirectional sensors, two unidirectional proportional sensors, and a motor with offset weight; the method comprising:

receiving a first signal from at least one of the sensors, the first signal at least in part controlling the imagery; and

sending an active tactile feedback signal to said image controller, the active tactile feedback signal causes said motor to rotate said offset weight causing a vibration to be felt by the hand of the human user.

130. (new) A method of interacting with an image controller according to claim 129 wherein said two unidirectional proportional sensors are connected by at least one sheet and said two unidirectional proportional sensors produce a user discernable snap tactile feedback felt by the user's finger upon sensor activation.

131. (new) A controller used in controlling imagery of an electronic game, the controller comprising:

a housing; associated with the housing are a plurality of input members receiving inputs from a user; the input members positioned to activate

sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first of the input members is a stick which is depressible toward the housing, the stick is additionally moveable on two mutually perpendicular axes,

a second of the input members is a finger depressible button, the button is associated with a proportional pressure-sensitive variable output sensor of the sensors, the proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third of the input members is a rotatable member;

structure forming a part of the controller providing feedback detectable by the user when making inputs.

132. (new) A controller used in controlling imagery of an electronic game, the controller comprising:

a housing; associated with the housing are a plurality of

input members receiving inputs from a user; the input members positioned to activate

sensors, said sensors sensing the inputs by the user and providing electrical outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first of the input members is a member moveable on two mutually perpendicular axes;

a second of the input members is a finger depressible first button, the first button is associated with a proportional pressure-sensitive variable output sensor of the sensors, the proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third of the input members is a rotatable member;

a fourth of the input members is a finger depressible second button, the second button is associated with an On/Off output sensor of the sensors.

133. (new) A controller according to claim 132 further comprising: the first of the input members is depressible activating a tactile sensor of the sensors, toward the housing along an axis mutually perpendicular to said two mutually perpendicular axes.

134. (new) A controller according to claim 133 further comprising a motor with weight mounted in said controller, said motor with weight providing active tactile feedback.

all cont

135. (new) A controller used in controlling imagery shown on a display, the display connected to an image generation device, the controller comprising:

a housing; associated with the housing are a plurality of members receiving physical inputs from a human user; the members receiving physical inputs are positioned to activate sensors, said sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs at least in part controlling the imagery;

a first of the members receiving physical inputs is a stick moveable on two axes,

a second of the members receiving physical inputs is a finger depressible first button, the first button is associated with a

first proportional pressure-sensitive variable output sensor of the sensors, the first proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third of the members receiving physical inputs is a finger depressible second button, the second button is associated with a second proportional pressure-sensitive variable output sensor of the sensors, the second proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a fourth of the members receiving physical inputs is a finger depressible third button, the third button is associated with an On/Off output sensor of the sensors.

136. (new) A controller according to claim 135 further comprising a motor with weight mounted in said controller providing active tactile feedback.

137. (new) A hand-held controller controlling an electronic game, the controller comprising:

a housing sized to be hand-held; associated with the housing are a plurality of

structural elements receiving inputs from a human user; the

structural elements receiving inputs are positioned to activate sensors, the sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first of the structural elements receiving the inputs is a stick element moveable on two axes and structured to activate at least a first proportional sensor and a second proportional sensor of the sensors,

a second of the structural elements receiving the inputs is a finger depressible first button, the first button is associated with a third proportional sensor of the sensors, the third proportional sensor receiving varying input and providing a variable output representing the varying input;

a third of the structural elements receiving the inputs is a finger depressible second button, the second button is associated with a fourth proportional sensor of the sensors, the fourth proportional sensor receiving varying input and providing a variable output representing the varying input;

a fourth of the structural elements is a function key positioned to activate an On/Off sensor of the sensors.

138. (new) A controller controlling imagery of an electronic game, the controller comprising:

a housing;

a plurality of members associated with the housing and receiving inputs from a human user; the plurality of members positioned to activate

sensors, the sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first member of the plurality of members is a first button, the first button is associated with a first proportional pressure-sensitive variable output sensor of the sensors, the first proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a second of the plurality of members is a second button, the second button is associated with a second proportional pressure-sensitive variable output sensor of the sensors, the second proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third member of the plurality of members is a stick member moveable in three axes,

a fourth member of the plurality of members is moveable in three axes,

structure within the controller providing feedback detectable by the user as a result of making the inputs.

139. (new) A controller according to claim 138 further comprising said structure within the controller providing feedback detectable by the user includes a motor with weight.

140. (new) A hand-held controller controlling electronic imagery, the controller comprising:

reference structure associated with a plurality of moveable

structural members, the structural members receiving physical inputs from a human user; the structural members are positioned to activate

sensors, the sensors sensing the physical inputs by the user and providing electrical outputs related to the sensed inputs, the outputs at least in part controlling the electronic imagery;

a first of the structural members is a stick member moveable on three axes;

a second of the structural members is a finger depressible first button, the first button is associated with a first proportional pressure-sensitive variable output sensor of the sensors, the first proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third of the structural members is a finger depressible second button, the second button is associated with a second

proportional pressure-sensitive variable output sensor of the sensors, the second proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force.

141. (new) A hand-held controller according to claim 140 further comprising structure mounted within the controller providing feedback detectable by the user.

142. (new) A hand-held controller according to claim 141 wherein said structure mounted within the controller providing feedback detectable by the user is a snapping mechanism which creates a snap when said stick member is pushed toward said reference structure.

143. (new) A hand-held controller according to claim 141 further comprising the structure providing feedback detectable by the user is active.

144. (new) A hand-held controller according to claim 141 further comprising the structure providing feedback detectable by the user is passive.

145. (new) A controller controlling imagery of an electronic

game, the controller comprising:

a housing; associated with the housing are a plurality of input members receiving inputs from a user; the input members positioned to activate

sensors, the sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first of the input members includes a shaft which is depressible toward the housing, depression of the shaft by a user input activating a sensor of the sensors which provides a feedback sensation detectable by the user, the shaft is additionally moveable on two mutually perpendicular axes,

a second of the input members is a finger depressible individual first button, the individual first button is associated with a first proportional pressure-sensitive variable output sensor of the sensors, the first proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a third of the input members is a finger depressible individual second button, the individual second button is associated with a second proportional pressure-sensitive variable output sensor of the sensors, the second proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

structure associated as part of the controller providing active tactile feedback detectable by the user when making at least some of the inputs; and

structure associated as part of the controller providing break-over feedback detectable by the user when making at least some of the inputs.

146. (new) A controller controlling imagery of an electronic game, the controller comprising:

a housing; associated with the housing are a plurality of input members receiving inputs from a user; the input members positioned to activate

sensors, the sensors sensing the inputs by the user and providing electrical outputs related to the sensed inputs, the outputs at least in part controlling the electronic game;

a first of the input members is a member moveable on two mutually perpendicular axes;

a second of the input members is a finger depressible button, the button is associated with a proportional pressure-sensitive variable output sensor of the sensors, the proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force;

a graphics generation device, the graphics generation device generating the imagery of the electronic game, the imagery is

shown on a display connected to the image generation device.

147. (new) A controller controlling an image generation machine, said controller comprising:

a housing; supported by the housing is

an input member with associated

sensors, the sensors detecting movement of said input member, said input member moveable on up to three axes; and

a plurality of finger depressible individual buttons with associated sensors; and

at least one of the buttons is associated with a first proportional pressure-sensitive variable output sensor of the sensors, the first proportional pressure-sensitive variable output sensor receiving varying input force and providing a variable output representing the varying input force.

148. (new) A controller according to claim 147 comprising said housing is hand-held.

149. (new) A hand held image controller controlling imagery, comprising:

a two-axes input member with associated sensors, outputs of the sensors controlling the imagery; and

a plurality of finger depressible individual buttons with

associated pressure-sensitive sensors, variable outputs of the pressure-sensitive sensors variably control the imagery; and

tactile feedback structure providing tactile sensations felt by a hand of a user of said controller.

150. (new) An image controller according to claim 149 in which at least one of the finger depressible individual buttons is structured with a resilient dome.

151. (new) An image controller according to claim 150 in which said image controller is connected to an image generation device.

a11 cont

152. (new) An image controller according to claim 151 in which said image generation device includes a television displayed electronic game.

153. (new) An image controller according to claim 152 wherein said tactile feedback structure comprises an electric motor and offset weight providing the tactile sensations according to events in the imagery.

154. (new) An image controller according to claim 153 in which a plunger is positioned above said dome, said plunger

comprising a non-conductive rigid plastic material.

155. (new) An image controller according to claim 153 in which said tactile feedback structure further comprises passive tactile feedback wherein said resilient dome provides a break-over tactile sensation to the user upon depression of said resilient dome.

156. (new) An image controller comprising:

a first input member with associated sensors, and moveable on at least two axes;

a second input member with associated sensors, and moveable on at least two axes;

a plurality of finger depressible button input members with associated sensors;

a first button of said button input members is positioned to activate a first proportional pressure-sensitive sensor;

a second button of said button input members is positioned to activate a second proportional pressure-sensitive sensor;

tactile feedback structure;

a housing supports at least in part: the first and second input members, the first and second input member sensors, the button sensors and the first and second button input members, and the tactile feedback structure.

157. (new) An image controller according to claim 156 wherein said tactile feedback structure is at least a tactile turn-on type associated with the button input members.

158. (new) An image controller according to claim 157 wherein said tactile feedback structure provides at least active tactile feedback.

159. (new) An image controller according to claim 158 wherein said active tactile feedback structure comprises a motor and offset weight.

160. (new) A controller controlling a television based game, the controller comprising:

a housing;

a first element rotatable about a first axis and a second axis controlling two axes of the game, said first element depressible toward said housing along a third axis at least in part controlling the game;

a clicking mechanism providing to a user a detectable feedback when said first element is depressed toward said housing.

161. (new) A controller controlling a television based game,

the controller comprising:

a housing at least indirectly supporting

a first element rotatable about a first axis and a second axis controlling two axes of the game, said first element depressible toward said housing along a third axis activating a sensor;

and

a button positioned to be depressible to activate a pressure-sensitive sensor providing a variable output at least in part variably controlling the game.

A11 cont

162. (new) A controller controlling a television based game, the controller comprising:

a housing at least indirectly supporting

a first element rotatable about a first axis and a second axis controlling two axes of the game, said first element depressible toward said housing along a third axis at least in part controlling the game; and

a second element controlling two axes of the game, said second element depressible toward said housing along a third axis at least in part controlling the game; and

a first button positioned to be depressible with variable force to activate a first pressure-sensitive sensor providing a variable output variably controlling the game; and

a second button positioned to be depressible with variable force to activate a second pressure-sensitive sensor providing a variable output variably controlling the game; and

a third button positioned to be depressible to activate an On/Off sensor providing an On/Off output controlling an On/Off function of the game; and

a motor with weight providing active tactile feedback.

163. (new) A controller controlling a television based game, the controller comprising:

a housing, said housing shaped to be hand held; said housing at least in part supporting

a two axes first actuator rotatable about a first axis and a second axis controlling two axes of the game, said first actuator depressible toward said housing along a third axis;

a clicking mechanism providing to a user a detectable feedback when said first actuator is depressed toward said housing;

a two axes second actuator controlling two axes of the game;

a finger depressible first button positioned to activate an On/Off sensor; and

a finger depressible second button positioned to activate a proportional sensor.

164. (new) A hand-held controller in communication with a image generation machine controlling an electronic game, the controller comprising:

a housing sized to be hand-held; associated with the housing are a plurality of

structural elements receiving inputs from a human user; the structural elements receiving inputs are positioned to activate

sensors, the sensors sensing the inputs by the user and providing outputs related to the sensed inputs, the outputs controlling the electronic game;

a first of the structural elements receiving inputs is a finger depressible first button, the first button is associated with a first proportional sensor of the sensors, the first proportional sensor receiving varying input and providing a variable output representing the varying input;

a second of the structural elements receiving inputs is a finger depressible second button, the second button is associated with a second proportional sensor of the sensors, the second proportional sensor receiving varying input and providing a variable output representing the varying input;

a third of the structural elements is a function key positioned to activate an On/Off sensor of the sensors;

a fourth of the structural elements receiving inputs is a stick element controllable on two axes.

165. (new) An improved controller having structure allowing human inputs to control three-dimensional imagery shown by a display;

wherein the improvements comprise:

a first four sensors associated with

a platform of said controller, said platform is a rotation actuating member rotatable about a first axis and a second axis;

a first two sensors of said four sensors, said first two sensors sensing rotation of said platform about said first axis and at least in part controlling the three-dimensional imagery;

a second two sensors of said four sensors, said second two sensors sensing rotation of said platform about said second axis and at least in part controlling the three-dimensional imagery; and an additional

six pressure sensors supported by said controller, said six pressure sensors sensing pressure forces applied as human inputs to said controller and at least in part controlling the three-dimensional imagery; and an additional

two sensors supported by said controller, said two sensors sensing human inputs and at least in part controlling the three-dimensional imagery; whereby said controller has at least twelve sensors controlling the three-dimensional imagery; and

a tactile feedback motor mounted as a component of said controller, said tactile feedback motor providing vibration to be

felt by a human controlling said controller, said tactile feedback motor having

an offset weight, said tactile feedback motor fixed within

a cavity in a hand grasped portion of said controller, said cavity having sufficient volume for allowing free rotation of said offset weight by said tactile feedback motor;

the sensors each including spacing, said spacing isolating the sensors against being falsely activated by vibration from the tactile feedback motor rotating said offset weight.

166. (new) An improved controller controlling three-dimensional imagery shown by a display;

wherein the improvements comprise:

a first four sensors associated with

a moveable member of said controller, said member moveable about a first axis and a second axis;

a first two sensors of said four sensors, said first two sensors sensing movement of said member about said first axis, said first two sensors controlling a first axis of the three-dimensional imagery;

a second two sensors of said four sensors, said second two sensors sensing movement of said member about said second axis, said second two sensors controlling a second axis of the three-

dimensional imagery; and an additional

eight sensors supported by said controller, said eight sensors sensing human inputs and at least in part controlling the three-dimensional imagery; whereby said controller is structured with at least twelve sensors controlling the three-dimensional imagery; and

a tactile feedback motor with rotatable offset weight mounted in a hand grasped portion of said controller, said tactile feedback motor with rotatable offset weight providing vibration to be felt by at least one hand of the human user when grasping said hand grasped portion, wherein the vibration represents simulated contact in the three-dimensional imagery.

cont

167. (new) An improved controller in accordance with claim 166 wherein a plurality of said sensors include spacing isolating the sensors against being falsely activated by vibration from the tactile feedback motor rotating said offset weight.

168. (new) A 3D virtual environment controller, comprising:

independent sensors changing inputs pertaining to at least three axes of graphics control by a human user into electrical outputs controlling three-dimensional imagery shown by an electronic display;

a first four of said independent sensors activated by

a structural component of said controller, said structural component moveable about at least a first axis and a second axis to output at least two axes of control signals controlling the three-dimensional imagery;

six of said independent sensors are pressure sensors supported by said controller, the six sensors sensing variable pressure forces applied as human inputs to said controller, the six sensors at least in part controlling the three-dimensional imagery; and an additional

two of said independent sensors are sensors supported by said controller, the two sensors sensing human inputs and controlling the three-dimensional imagery; whereby said controller is structured with at least twelve sensors controlling the three-dimensional imagery; and

a tactile feedback motor with offset weight providing vibration to the human user to simulate a contact in the virtual environment, said tactile feedback motor with offset weight contained within

a handle of said controller, whereby a hand holding said handle is near said tactile feedback motor with offset weight.

169. (new) A controller structured to change human inputs into electrical outputs controlling three-dimensional imagery,

comprising:

said controller structured with at least a sufficient number of sensors to allow controlling the three-dimensional imagery shown by a display;

a rotation actuating member supported by said controller, said rotation actuating member rotatable about a first axis and a second axis; said rotation actuating member positioned to activate

a first four sensors of said sufficient number of sensors;

a second four sensors are pressure sensors supported by said controller, said second four sensors sensing pressures applied by human inputs to said controller, said second four sensors controlling the three-dimensional imagery;

a third four sensors supported by said controller, said third four sensors sensing human inputs and controlling the three-dimensional imagery;

a tactile feedback motor with offset weight are components of said controller, the motor and offset weight providing vibration felt by a hand grasping said controller, the vibration represents simulated contact within the three-dimensional imagery.

170. (new) A controller according to claim 169 wherein said sufficient number of sensors is at least twelve.

171. (new) A controller according to claim 169 wherein the four pressure sensors are proportional sensors.

172. (new) A controller according to claim 171 wherein the proportional sensors each produce a tactile snap feedback when activated.

173. (new) A controller according to claim 172 wherein the proportional sensors produce a variable output signal responsive to varying pressure inputs to the sensors.

174. (new) A controller according to claim 170 wherein said second four sensors are activated by a second member of said controller.

175. (new) A controller according to claim 174 wherein said at least four of the sensors each produce a tactile snap feedback when activated, and at least two sensors of said twelve are proportional sensors capable of varying output signals in relationship to varying pressure inputs.

176. (new) A method of using a controller, wherein the acts comprise:

physically inputing, from a human into the controller, said

physically inputing controlling at least one three-dimensional object shown by a display, said physically inputing activating sensors of said controller providing commands to move at least some portion of said at least one three-dimensional object shown by the display, said physically inputing activating the sensors includes at least independent physical inputs controlling: a move forward command, a move back command, a move left command, a move right command, a move up command, and a move down command;

and

sensing vibration with a hand of the human as a tactile feedback provided by said controller.

177. (new) A method of using a controller according to claim 176 further including the acts

physically inputing inputs related to at least three axes into the controller, said physically inputing controlling navigating a three-dimensional viewpoint shown by the display.

178. (new) A method of using a controller according to claim 177 wherein inputing at least one of said independent physical inputs is in response to the sensing of said vibration.

179. (new) A method of using a controller according to claim 176 wherein the vibration tactile feedback is related to the

controlling of the at least one three-dimensional object shown by the display.

180. (new) A method of using a controller according to claim 176 wherein said controller is providing said tactile feedback using an electric motor with offset weight, the rotating of the offset weight by the motor causes the vibration, and

the sensors are independent sensors, wherein each one independent sensor controls each one of the commands.

181. (new) An improved controller according to claim 165 wherein said six pressure sensors are proportional sensors.

182. (new) An improved controller according to claim 165 wherein said spacing associated with the sensors is spacing between mechanical actuators of the sensors and the sensors.

183. (new) An improved controller according to claim 165 wherein said spacing associated with the sensors is spacing between a first portion and a second portion of each of the sensors.

184. (new) An improved controller according to claim 181 wherein the spacing associated with the proportional sensors is

spacing between mechanical actuators and the proportional sensors.

185. (new) An improved controller according to claim 181 wherein the spacing associated with the proportional sensors is spacing between a first portion and a second portion of each of the proportional sensors, and

the proportional sensors are pressure-sensitive.

186. (new) An improved controller according to claim 167 wherein said four pressure sensors are proportional sensors.

187. (new) An improved controller according to claim 167 wherein said spacing is between mechanical actuators and the sensors.

188. (new) An improved controller according to claim 167 wherein said spacing is between a first portion and a second portion of sensors.

189. (new) An improved controller according to claim 186 wherein the proportional sensors include spacing between a first portion and a second portion of each of the proportional sensors.

190. (new) A 3D virtual environment controller according to

claim 168 wherein each of said sensors includes spacing associated therewith, said spacing allowing said tactile feedback motor with offset weight to provide the vibration without the vibration falsely activating said sensors.

191. (new) A 3D virtual environment controller according to claim 190 wherein at least two of said sensors are proportional sensors.

192. (new) A 3D virtual environment controller according to claim 191 wherein the proportional sensors are pressure-sensitive variable output sensors wherein the outputs vary in relationship to varying input pressure by the human user, and

the proportional sensors each provide a snap through tactile feedback when activated.

193. (new) A multiple axes controller, comprising:

at least twelve sensors sensing inputs to the controller from a human user, the twelve sensors providing outputs at least in part controlling three-dimensional imagery shown by an electronic display;

a tactile feedback motor mounted to a hand held housing of the controller, said feedback motor providing vibration to the human user to simulate a physical occurrence related to the

imagery;

a single first button positioned on the controller is depressible by a finger of the human user to actuate

a first sensor of said sensors and

a second sensor of said sensors;

said first sensor is a proportional sensor,

said second sensor is a switch capable of indicating an On state when actuated;

a single second button positioned on the controller is depressible by a finger of the human user to actuate

a third sensor of said sensors and

a fourth sensor of said sensors;

said third sensor is a proportional sensor,

said fourth sensor is a switch capable of indicating an On state when actuated;

a two-axes member supported on said controller, said two-axes member positioned to activate

four sensors, the four sensors comprising:

a fifth sensor and a sixth sensor for sensing movement of said member about the first axis;

a seventh sensor and an eighth sensor for sensing movement of said member about the second axis.

194. (new) A multiple axes controller according to claim 193

wherein actuation of at least one of the first and second sensors activates a turn-on tactile feedback.

195. (new) An improved controller for controlling a television based electronic game, the improvements comprising:

a first two-axes member positioned to activate

four sensors, output of said four sensors controlling the game;

a second two-axes member with structure to activate

a first rotary potentiometer and

a second rotary potentiometer;

a third two-axes member with structure to activate

a third rotary potentiometer and

a fourth rotary potentiometer, output of the potentiometers controlling the game; the members structurally supported by the controller,

a first compound sensor and

a second compound sensor are supported within said controller, the first compound sensor comprising:

a first proportional sensor, and a first simple switched sensor;

the second compound sensor comprising:

a second proportional sensor, and a second simple switched sensor; output of the compound sensors controlling

the game,

a motor with offset weight is supported in the controller providing active tactile feedback as vibration to a user.

196. (new) A method of interacting with a television displayed game, comprising:

receiving a first proportional signal representing depression of a single finger depressible independent first button located on a controller, said first proportional signal at least in part controlling the game imagery;

receiving a first On signal representing output from a first On/Off switch activated by depression of said first button, said first On signal at least in part controlling the game imagery;

receiving a second proportional signal representing depression of a single finger depressible independent second button located on said controller, said second proportional signal at least in part controlling the game imagery;

receiving a second On signal representing output from a second On/Off switch activated by depression of said second button, said second On signal at least in part controlling the game imagery;

receiving a third proportional signal from said controller;

receiving a fourth proportional signal from said controller, the third proportional signal and the fourth proportional signal

representing output from sensors activated by two axes movement of a first member;

receiving a fifth proportional signal from said controller;

receiving a sixth proportional signal from said controller, the fifth proportional signal and the sixth proportional signal representing output from sensors activated by two axes movement of a second member;

the third, fourth, fifth and sixth proportional signals at least in part controlling the game imagery.

197. (new) A method according to claim 196 further comprising:

sending an active tactile feedback signal to said controller causing a motor to rotate an offset weight providing vibration.

198. (new) A method of controlling a game displayed on a television, comprising:

receiving a first proportional signal from a controller, the first proportional signal representing output from a proportional sensor activated by a single independent first button depressible by a single finger of a human user;

receiving a second proportional signal from the controller, the second proportional signal representing output from a second proportional sensor activated by a single independent second

button depressible by a single finger of the human user;

receiving a third proportional signal from the controller; and

receiving a fourth proportional signal from the controller, the third proportional signal and the fourth proportional signal represent output from sensors activated by two axes movement of a first member;

receiving a fifth proportional signal from the controller;

receiving a sixth proportional signal from the controller, the fifth proportional signal and the sixth proportional signal represent output from sensors activated by two axes movement of a second member, the third, fourth, fifth and sixth proportional signals at least in part controlling the game imagery;

receiving a seventh signal from the controller; and

receiving an eighth signal from the controller, the seventh signal and the eighth signal represent output from sensors activated by two axes movement of a third member, the seventh signal and the eighth signal at least in part controlling the game imagery.

199. (new) A method according to claim 198 further comprising:

sending an active tactile feedback signal to the controller causing a motor to rotate an offset weight providing vibration.

200. (new) A method according to claim 198 further comprising:

receiving a first On signal representing output of a first On/Off switch activated by depression of said first button, said first On signal at least in part controlling the game imagery;

receiving a second On signal representing output of a second On/Off switch activated by depression of said second button, said second On signal at least in part controlling the game imagery.

201. (new) A method according to claim 200 further comprising:

sending an active tactile feedback signal to the controller causing a motor to rotate an offset weight providing vibration.

202. (new) A method of interacting with three-dimensional imagery shown by a display, comprising:

receiving a first proportional signal representing depression of a single finger depressible independent first button located on a two-hand-held controller, said first proportional signal at least in part controlling the three-dimensional imagery;

receiving a first On signal from a first On/Off switch representing depression of said first button, said first On signal

at least in part controlling the three-dimensional imagery;

receiving a second proportional signal representing depression of a single finger depressible independent second button located on said two-hand-held controller, said second proportional signal at least in part controlling the three-dimensional imagery;

receiving a second On signal from a second On/Off switch representing depression of said second button, said second On signal at least in part controlling the three-dimensional imagery;

receiving a third proportional signal,

receiving a fourth proportional signal,

receiving a fifth proportional signal,

receiving a sixth proportional signal,

the third, fourth, fifth and sixth proportional signals at least in part controlling the three-dimensional imagery.

all cont

203. (new) A method according to claim 202 wherein a user discernable passive tactile feedback is provided to a finger of a user by depression of said first button.

204. (new) A controller converting human inputs into electrical outputs controlling at least three axes of three-dimensional imagery shown by a display;

said controller structured with at least twelve sensors

sensing human inputs and outputting electrical outputs;

active tactile feedback structure providing vibration to be felt by a human inputing into said controller;

a plurality of said sensors each including spacing isolating the plurality of sensors against being activated by vibration from said active tactile feedback;

a button positioned on the controller is depressible by a finger of the human user, said button positioned to actuate

a proportional sensor.

205. (new) A controller according to claim 204 wherein said button is also positioned to actuate a

an On/Off indicating sensor of said sensors, wherein full depression of said button by the human user actuates the On/Off indicating sensor and the proportional sensor.

all cont

206. (new) An improved controller controlling a television based electronic game, the improvements comprising:

a first member moveable on two axes and positioned to activate

four sensors, output of said four sensors controlling the game;

a second member moveable on two axes with structure to activate

a first rotary potentiometer and

a second rotary potentiometer;

a third member moveable on two axes with structure to activate

a third rotary potentiometer and

a fourth rotary potentiometer, output of the potentiometers controlling the game; the members structurally supported by the controller and the four rotary potentiometers are solder mounted to

a circuit board sheet, said circuit board sheet is supported within the controller.

207. (new) An improved controller according to claim 206 wherein said controller further comprises

a first depressible button positioned to activate

a first proportional sensor supported in said controller, and

a second depressible button positioned to activate

a second proportional sensor supported in said controller.

208. (new) An improved controller according to claim 207 wherein the proportional sensors are pressure-sensitive sensors.

209. (new) An improved controller according to claim 206 wherein the controller further comprises active tactile feedback

structure.

210. (new) An improved controller according to claim 209 wherein said active tactile feedback structure comprises a motor and offset weight.

211. (new) An improved controller according to claim 208 further comprises said circuit board sheet supports electronic circuitry and has attached thereto a cable outputting data to the television based electronic game.

212. (new) An improved controller controlling a television based electronic game, the improvements comprising:

a first member moveable on two axes and positioned to activate

four sensors, output of said four sensors controlling the game;

a second member moveable on two axes with structure to activate

a first rotary potentiometer and

a second rotary potentiometer;

a third member moveable on two axes with structure to activate

a third rotary potentiometer and

a fourth rotary potentiometer, output of the potentiometers controlling the game; the members structurally supported by the controller and the four rotary potentiometers are solder mounted to

a circuit board sheet, said circuit board sheet is supported within the controller;

a first depressible button positioned to activate a first pressure-sensitive proportional sensor supported in said controller;

a second depressible button positioned to activate a second pressure-sensitive proportional sensor supported in said controller;

said circuit board sheet supports

electronic circuitry, said circuit board has attached thereto

a cable communicating data to the television based electronic game.

213. (new) An improved controller according to claim 212 wherein the controller further comprises active tactile feedback structure.

214. (new) An improved controller according to claim 213 wherein said active tactile feedback structure comprises a motor and offset weight.

215. (new) An improved controller controlling a television based electronic game, the improvements comprising:

a first member moveable on two axes and positioned to activate

four sensors, output of said four sensors controlling the game;

a second member moveable on two axes with structure to activate at least

a first variable resistor and

a second variable resistor;

a third member moveable on two axes with structure to activate at least

a third variable resistor and

a fourth variable resistor, output of the variable resistors controlling the game; the members structurally supported by the controller.

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216. (new) An improved controller according to claim 215 wherein said controller further comprising

a first compound sensor and

a second compound sensor, said first compound sensor comprising

a first proportional sensor and

a first simple switched On/Off sensor, said second compound sensor comprising

a second proportional sensor and

a second simple switched On/Off sensor.

217. (new) An improved controller according to claim 216 wherein said first compound sensor is positioned to be activated by

a first depressible button, said first depressible button depressible by a finger of a user, said second compound sensor is positioned to be activated by

a second depressible button, said second depressible button depressible by a finger of the user.

218. (new) An improved controller according to claim 216 wherein the controller further comprises active tactile feedback structure.

219. (new) An improved controller according to claim 218 wherein said active tactile feedback structure comprises

a motor and offset weight.

220. (new) A controller controlling three-dimensional imagery shown by a display, comprising:

a first four sensors associated with

a two-axes rotation actuating member of said controller;

a first two sensors of said four sensors, said first two sensors sensing rotation of said actuating member about a first axis, said first two sensors controlling a first axis of the three-dimensional imagery;

a second two sensors of said four sensors, said second two sensors sensing rotation of said actuating member about a second axis, said second two sensors controlling a second axis of the three-dimensional imagery; and an additional

eight sensors supported by said controller, said eight sensors sensing human inputs and at least in part controlling the three-dimensional imagery; whereby said controller is structured with at least twelve sensors controlling the three-dimensional imagery; and

a rotating member, said rotating member with structure to activate at least two sensors of said eight sensors.

221. (new) A three-dimensional imagery controller, comprising:

at least twelve sensors sensing inputs by a human and outputting electrical outputs, the sensor outputs controlling at least in part the three dimensional imagery;

active tactile feedback structure providing vibration to be

felt by a hand of the human holding said controller;

a button positioned on the controller is depressible by a finger of the human, said button positioned to variably actuate

a proportional sensor, the proportional sensor outputting a proportional output, the proportional output variably controlling the three-dimensional imagery;

a rotating member, said rotating member positioned to actuate a plurality of the twelve sensors.

222. (new) An image controller, comprising:

at least twelve sensors changing physical inputs into electrical outputs, the electrical outputs controlling at least in part three axes of three-dimensional imagery shown by an electronic display;

a first plurality of said twelve sensors activated by

a three-axes member of said controller;

a second plurality of said twelve sensors activated by

a rotating member of said controller;

a tactile feedback motor; said tactile feedback motor moves

a weight providing vibration to a human user of said controller, the vibration simulates

a contact in the three-dimensional imagery, said tactile feedback motor with weight is contained within

a handle of said controller.

223. (new) An image controller according to claim 222, further comprising:

at least some of said twelve sensors are pressure-sensors, whereby variable pressure applied to one of the variable pressure sensors variably controls the three-dimensional imagery.

224. (new) An image controller, comprising:

a tactile feedback structure vibrating at least one human hand holding the controller;

at least twelve sensors changing physical inputs into electrical outputs at least in part controlling imagery;

a three-axes member of said controller actuates at least three sensors of said twelve sensors;

a rotating member of said controller actuates at least two sensors of said twelve sensors.

225. (new) An image controller according to claim 224 further comprising:

a motor; and

a weight are components of said tactile feedback structure, said motor moves said weight providing the vibrating.

226. (new) An image controller according to claim 225 further

comprising:

the imagery is three-dimensional imagery.

227. (new) An image controller according to claim 226 further comprising:

a plurality of sensors are pressure-sensitive sensors, said plurality of sensors are of said twelve sensors.

228. (new) An image controller according to claim 226 further comprising:

the vibrating is according a contact event in the three-dimensional imagery.

229. (new) An image controller according to claim 228 further comprising:

a plurality of sensors are pressure-sensitive sensors, said plurality of sensors are of said twelve sensors.

230. (new) An image controller according to claim 229 further comprising:

a handle of the controller, said handle contains said motor.